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Macdonald Manual Training Schools in Canada

ILLUSTRATED

By Professor James W. Robertson
and Albert H. Leake

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Manual Training

The Macdonald Manual Training Schools

By

Jas. W. Robertson

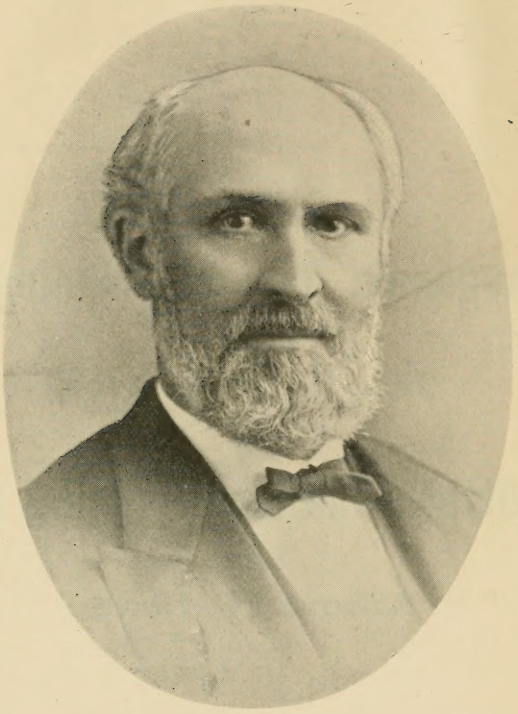
The Ottawa Manual Training School

By

Albert H. Leake

Reprinted from the April Canadian Magazine

TORONTO, 1901



SIR WILLIAM C. MACDONALD

Sir William C. Macdonald is a native of Prince Edward Island. For over forty years he has been a resident of the city of Montreal. He has given largely of his time, thought and wealth to the advancement of education in Canada. His gifts have been bestowed with careful discernment. Since the real benefactor is he who leads the people to exert themselves in right directions, thrice happy in his manner of loving and helping his country is he who leads its youth to seek knowledge, ability and wisdom, and at the same time provides opportunities whereby they are enabled to do so successfully.

In 1899, Sir William and Professor Robertson agreed upon a scheme, whereby it was hoped that Manual Training might be introduced into the public schools of all the provinces of Canada. Sir William provided the necessary funds; and Professor Robertson undertook to carry out the plan.

THE MACDONALD MANUAL TRAINING SCHOOLS.

By James W. Robertson, Commissioner of Agriculture and Dairying for Canada.

OPPORTUNITIES for great growth are opening up to Canadians in all directions. There are now more people in the Dominion than there were in the United States at the beginning of the last century. What and how shall it be with Canada a hundred years hence? The direction and rate of progress will depend largely upon the quality of education given in the public schools. Ability to see the coming needs and possibilities, and earnest labour in sympathy with these, are the talents which good men have put at the service of their fellows in the past. They have not always been understood and welcomed in their day, but they cannot be dispensed with except at the cost of stagnation and decay in the nation's life.

In its real nature a system of education is something greater and deeper and broader and higher than books and schools and equipments. These are only some of its belongings. If one takes the old Scottish parish schools as an instance: their merit and their power lay not so much in books and regulations as in the personality of the teachers and the prodigious enthusiasm of the people in their appreciation of education. It is on such an intangible social spirit in the community that every system of education must rely for its vitality, vigour and efficiency.

EDUCATION MORE THAN INFORMATION.

Schools, as we all know, are among the means which mankind have used for conserving and passing on the intellectual wealth of the past. They have the two-fold use of imparting information and training the powers of the pupils. Knowledge is certainly necessary; but the acquiring of it can hardly be counted the main purpose of education unless that be also the chief end of life. Far be it from me, so conscious of deficiency, to speak lightly, much less disrespectfully, of knowledge, or of the happiness which the pursuit of it brings. But at its best it can be only a means to an end greater than itself. The learning of any good thing really well, and endeavouring to apply it carefully to thought and conduct, have a fine effect upon character. They refine and strengthen it. The point is that the learning and the applying should go hand in hand.

Much has been said about the danger of over-educating the rural population and thereby leading them to leave the farms. I do not think it is possible to over-educate anybody. On the other hand, it is easily possible and has been quite common to overload boys and girls as well as grown people with information.

It has been said, also, that the schools where book studies are the only or chief ones turn the children from contentment with occupations in which bodily labour plays an important part, and incline them to leave rural homes for cities and clerical and professional pursuits. Doubtless, one of the many causes which have helped to bring about a distaste for manual and bodily labour has been the too exclusively book and language studies of the common schools.

TRAINING IN SCHOOLS.

Education begins with the child's life; and although the school years may be short it does not end with them. It seems unnecessary and wholly undesirable that the school period should be different from the years which go before and follow it, in its influence on the development of some of the most important faculties. Before the child

goes to school it is receiving most of its education by its senses bringing it into conscious relationship with the material world around it, and by doing things with its hands. After boys and girls leave school most of them are required to do things with their hands, and to recognize and control their relationships to the things about them.

Surely it is not too much to expect that schooling, while imparting information and developing the general intelligence, should also cultivate their senses to be keen and alert, training them to report accurately and fully on what lies all around them. None the less should their hands and eyes be disciplined to obey readily and skilfully the decisions of the mind. The systematic training of the senses, of the hands and eyes, and obviously of the mind through them, are some of the objects of practical and manual instruction. Manual Training is a means of developing mental, more than muscular, power; and is not a short cut or a long step towards learning a trade.

PURPOSE OF EDUCATION.

A child is one and indivisible, although in seeking clearness of explanation we speak of the body, the emotions, the intellect and the will. Sound education implies progress in intelligence, in practical ability, and in desire and capacity to work with others for the good of all. It involves the training of the body and its senses, the training of the intellect, and the training of the moral nature also. Manual Training fittingly finds its place in such an education. It is a means in the development of moral as well as mental power. Books are only agencies; and there are others no less suitable. Indeed some of us think that materials tools and exercises with them, plants instruments and exercises with them, are much more useful than books alone can be, particularly during the public school age of children.

To cultivate the emotions into an intelligent outgoing towards noble ends, to develop the intellect in its spiritual outreach and grasp of verities, to have these operating in a sound body trained to obey the decisions of the will, itself quickened to sustained effort by love of the truth and by faith in the Unseen Power which maketh for righteousness; to bring about these—nothing lower, nothing less—is the purpose of worthy education.

TEACHERS AND THEIR OFFICE.

The teacher is the prime power outside the pupils that makes for growth by leading out their activities in right directions. He uses methods, processes and devices; but these are only means whereby he makes available ideas and ideals to stimulate, direct and nourish their minds. Ideas and ideals for children are gotten from things and from life more than from symbols, words and books. Efficiency in the all-round development of the child-life is what we all want, and not the taking up of a burdensome multitude of subjects to qualify for passing examinations. Consequently the school courses and methods should be adapted for use in training the whole child harmoniously. It is claimed by those who have had much experience that what is known as Manual Training can supplement book studies and other influences in that direction. On the other hand, there is a danger nowadays that too much may be made of it and expected from it. Any part of education, which has been neglected, by and by gets its innings with a likelihood of too much attention for a time. That may account for the enfeebling bookishness so manifest in recent years.

Love of the task put before the pupil sets the pace for his progress. An awakening of interest is the first step. Should not, therefore, the exercises and subjects for schools be selected and arranged from those which children naturally love, or which in themselves arouse interest and awaken love? Surely school lessons and studies are incomplete or ill-fitting when a child may be punished for misdemeanour by being 'kept in' to continue any one of them. Are things any more whole-

A CORNER OF MACDONALD MANUAL TRAINING CENTRE—WESTMOUNT, QUE.

some when they are distasteful? In the Manual Training classes, punishment is felt when a lad is prevented from going on with his work. Is it not time to abandon the notion that discipline—intellectual, moral and physical—is to be gained only through doing what is disliked or by refraining from doing what is agreeable? Expenditures of love by the teachers on the pupils, by the pupils on their work, by the parents on the results of the joint efforts of both, are the most precious as they are the most potent of all factors and forces for advancement. That is the more excellent way in education to which the hand of Manual Training points.

THE KINDERGARTEN.

Kindergarten takes its name from two German words signifying a children's garden. It has come to indicate the method of teaching and training and also the place where these are carried on. A gardener does not furnish plants with leaves and fruit to be attached to them. He does everything necessary that they may grow. Since the order of mental growth is Desire, Action, Sensation, Thought, the desire of the child must be quickened towards an action or series of actions, having an educational value. Thus mental growth begins and power is gained.

NOT TRADE SCHOOLS.

Manual and practical instruction (under the name of schools of industry) was advocated a century ago mainly as a means to fit the children of artisans to earn their own living successfully. These schools were more generally promoted in Germany than elsewhere and were not educationally a success. Manual and practical instruction is now recommended as an educational means for developing intellectual and moral qualities of high value in all children, without particular regard to the occupations they are to follow afterwards. It is not technical education, although it gives, during the period of general education, the necessary preparation whereby anyone may derive the full measure of benefit from technical instruction at a later age.

DIFFERENT FROM APPRENTICE WORK.

The Manual Training room is not a workshop where operations are carried on with a view to the commercial value of the articles turned out. A workshop is a money-making institution, whereas a room for Manual Training as part of a school is for the training and developing of the children, without regard to the intrinsic value of the work turned out, or the length of time required to make any particular object. The course is really a series of exercises so arranged as to have educational results.

THE BEGINNING IN LONDON.

Manual Training in the primary schools was begun in London, England, about 1886. As woodwork was not then recognized by the English Education Department as a subject to be taught in elementary schools, the School Board was unable to use public moneys to maintain it. Next year a grant of one thousand pounds was obtained from the Drapers' Company through the City and Guilds' Institute. A joint committee was formed whereby the funds were administered. The Manual Training was found so thoroughly useful and acceptable that it was speedily extended. In 1890 woodwork was recognized by the English Education Department as a school subject. The School Board was thus enabled to expend its own funds upon this branch of school work; and in the same year money was provided by Parliament for grants for it from the Imperial Exchequer.

WHAT I SAW IN ENGLAND.

In both of the two past years, I have visited some of the primary schools in London, Liverpool, Manchester, Birmingham, Leeds and other places. So far as I could learn, the Manual Training centres established in England in 1890, did not provide for the boys from more than 50 schools. It is estimated that in 1900 the Manual Training cen-

A CORNER OF MACDONALD MANUAL TRAINING CENTRE—BROCKVILLE, ONT.

tres in England provided for the boys from about 5,000 schools.

At a typical school which I visited, the room was fitted with some twenty benches, each provided with about a dozen woodworking tools. There was also a supply of general tools for the room in addition to the particular tools on each bench. One instructor took charge of the twenty boys. Each boy attended half a day per week. Consequently, the Manual Training room in that instance provided facilities for 200 boys, there being ten half days for school in every week.

BENCHES AND MODELS.

The benches are of convenient height and size, and each one is fitted with a rack for the holding of tools, and also with tools. Some of them are also fitted with a simple device for the holding of the drawings, so that the work with the tools may proceed with the drawing in full view all the time. General class instruction with the aid of a blackboard is given by some teachers in a fifteen minutes' talk, before the bench work of the half-day begins; and instruction is given also to each of the pupils individually as the work at the benches proceeds.

A series of articles technically called "models" are made by the boys. The things are articles of use, and are known to be such by the pupils. Each one is wholly made by the pupil. When the teacher needs to give practical demonstration, he gives it on another piece of wood, and not on the piece on which the boy is working. "It is not much learning, but much interfering, which makes anybody mad."

NATURE OF THE MODELS.

The pupils make drawings of the models from measurements, and make the objects from the drawings. In some schools the first object to be made is a wedge or flower stick or plant label. These involve (1) cutting to an exact length (2) reducing to the proper thickness and width, and (3) making the same angles as those of the model. In other schools a small pointer is the first model, and in others some object equally easily made. The first article is easily made; the second introduces some slightly different use of a tool or the use of some different tool; and so they follow, arousing, training and gratifying the child as he makes all of each one himself.

HAND-AND-EYE TRAINING.

The Manual Training includes practically as much drawing with a pencil on paper as it does woodwork by the use of tools. It is really hand-and-eye training. It is not in the nature of a new subject or study to be added to an already over-burdened school course. It does not offer an unprofitable knowledge of facts, but it does furnish nourishing ideas. It is in the highest sense a recreation for the mental powers of the boys. Its purpose is to train the child with system and care to observe, to interpret, to construct and thus to express his thoughts.

THE BOYS LIKE IT.

The course of instruction lasts for three years, and each boy gives half a day per week to it.

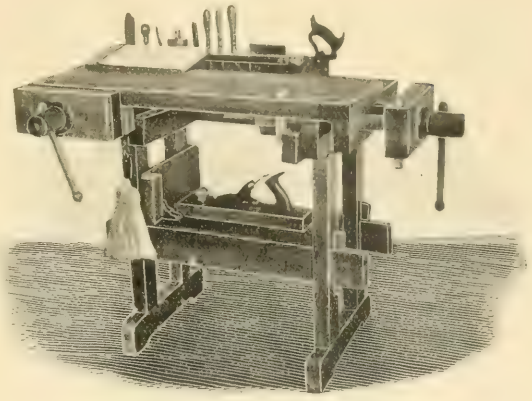
In some cases the Manual Training rooms are in the ordinary school building; in other instances, the Manual Training is carried on in a separate building, which serves as "a centre" for the boys from two, three, or more schools in the locality.

I learned that the attendance of the boys at the Manual Training was more regular than at any of the other classes during the week, and that discipline was not hard to maintain.

I observed that the children were deeply interested in what they were doing. A casual glance of observation was all they gave to visitors. A spirit of earnestness, self-reliance, carefulness in little things and perseverance seemed to pervade the schools. The teachers told me that in accuracy of observation and clearness and exactness of expression there was a noticeable improvement in the children after they had gone through the Manual Training course.

THE REFORM IS FAR-REACHING.

This Manual Training movement is only part of the educational reform which is making headway in Great Britain and other European countries. In 1897, a Royal Commission was appointed to determine how far and in what form manual and practical instruction should be included in the educational system of the primary schools under the Board of National Education in Ireland. The report of that Commission is a most instructive document, in which they point out certain changes in other parts of the system of national education which they think will become necessary with a view to the development of manual and practical instruction. The order in which they consider these changes, is as follows: Kindergarten, Educational Handwork, Drawing, Elementary Science, Agriculture, and some others.

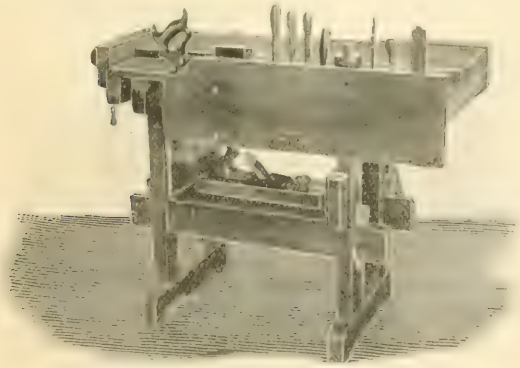


MANUAL TRAINING BENCH—FRONT VIEW

IT WILL AFFECT AGRICULTURE.

The Kindergarten system has already been quite generally adopted in many of the Canadian schools, and Manual Training is intended to include Educational Handwork and Drawing. Elementary Science is finding a place in many of the Canadian schools under the name of "nature studies." Regarding Agriculture, the report of the Commission says:

"We do not think that agriculture as an art, that is to say practical farming, is a subject that properly belongs to elementary education. At present the study of what is called the theory of agriculture is compulsory for boys in all rural schools, and is highly encouraged by fees. But our enquiry has shown that this study consists, for the most part, in committing a text-book to memory; and we have come to the conclusion that it has little educational or practical value. We recommend instead that the course of Elementary Science to be taught in rural schools should be so framed as to illustrate the more simple scientific principles that underlie the art and industry of agriculture. We also recommend the maintenance and extension of school gardens, as a means by which these scientific principles may be illustrated and made interesting to the pupils."



MANUAL TRAINING BENCH—BACK VIEW

The gift of $10,000 by Sir William C. Macdonald to provide prizes for boys and girls in the seed-grain competition is in accord with the recommendations of these Illustration School Gardens.

The Progressive Agriculture Branch of the Macdonald Manual Training Fund has great possibilities of usefulness. Over 1,500 boys and girls have entered the competition; and there is no saying whereunto its educational influence may grow.

ROYAL COMMISSION ON THE SUBJECT.

The following are extracts from the fourth and final re-

port of the Royal Commission already referred to. It was submitted on 25th June, 1898:

"In carrying out the task imposed upon us by your Excellency's Commission of January 25th, 1897, we have had ninety-three meetings, of which fifty-seven were sittings for the receiving of evidence. We have taken the evidence of 186 persons whom we considered qualified to give information on the matters submitted to us, and we have visited 119 schools, in most of which we have had an opportunity of seeing Manual and Practical Instruction actually given."

. . . . . .

"With a view to ascertain the existing facts with regard to Manual and Practical Instruction in Germany, France, Switzerland, and Holland, we employed as our assistants to visit these countries, Messrs. Purser, Rolleston, Bonaparte Wyse, and Hughes-Dowling. The reports of these gentlemen will be found in Appendix B. We have had the advantage, too, of the assistance of Mr. M. E. Sadler, Director of Special Inquiries and Reports to the Committee of Council on Education, who was kind enough to furnish us with a memorandum on Manual Training for boys in Primary Schools in foreign countries. For our information regarding schools in the United States, we are indebted to the very complete and exhaustive reports issued by the United States Bureau of Education. We have also had the benefit of the experience of one of our colleagues, Professor Fitzgerald, who took the occasion of a visit to America, in the autumn of last year, to see some of the primary schools in that country."

. . . . . .

RESULT OF INQUIRY.

"After careful consideration of the evidence laid before us, and of the facts which we have seen for ourselves, we now proceed to report, in accordance with your Excellency's Commission, how far, and in what form, Manual and Practical Instruction should be included in the system of primary education carried out by the National Education Board in Ireland. We may at once express our strong conviction that Manual and Practical Instruction ought to be introduced, as far as possible, into all schools where it does not at present exist, and that, in those schools where it does exist, it ought to be largely developed and extended. We are satisfied that such a change will not involve any detriment to the literary education of the pupils, while it will contribute largely to develop their faculties, to quicken their intelligence, and to fit them better for their work in life."

. . . . . .

NOTE.—The Commissioners visited schools in Ireland, England, Scotland, Sweden and Denmark.

REASONS.

"The considerations by which we have been led to the general conclusions above set out, will be fully discussed in the second part of this report, under the several heads of Manual and Practical Instruction. But we think it will be for your Excellency's convenience, that the general summary of our conclusions should be here followed by a general summary of the grounds on which they are based."

REASONS MAINLY EDUCATIONAL.

1. "First, then, there are reasons founded on educational principles. The present system, which consists largely in the study of books, is one-sided in its character; and it leaves some of the most useful faculties of the mind absolutely untrained. We think it important that children should be taught not merely to take in knowledge from books, but to observe with intelligence the material world around them; that they should be trained in habits of correct reasoning on the facts observed; and that they should even at school acquire some skill in the use of hand and eye to execute the conceptions of the brain. Such a training we regard as valuable to all, but especially valuable to those whose lives are to be mainly devoted to industrial arts and occupations. The great bulk of the pupils attending primary schools under the National Board will have to earn their bread by the work of their hands; it is therefore important that they should be trained, from the beginning, to use their hands with dexterity and intelligence."

REASONS FROM EXPERIENCE.

2. "Next, we have the practical experience of those schools in England, Scotland, and on the continent of Europe, in which such a system as we recommend has been already introduced and tested. The evidence we have received on this point, is absolutely unanimous and, as we think, entirely conclusive. We have been told, over and over again, that the introduction of manual and practical training has contributed greatly to stimulate the intelligence of the pupils, to increase their interest in school work, and to make school life generally brighter and more pleasant. As a consequence the school attendance is improved; the children remain at school to a more advanced age; and much time is gained for the purpose of education.

"We inquired particularly whether the literary side of school studies—reading, writing, arithmetic, grammar, and geography—had suffered any loss by the change; and the answer was uniform, that no such loss had been observed. In some cases we were assured that the literary studies had been positively improved by the introduction of manual training. This result was accounted for, partly by the increased intelligence of the children, partly by the constant change and variety of

their occupations,—many of the most useful exercises being only a kind of organized play, and partly by their increased interest in their work.

"We regard it also as a very significant testimony to the value of manual training, that wherever it has been once introduced, it has, with hardly an exception, been continued and extended. There has been practically no disposition to go back to the old system, which made primary education almost exclusively literary in its character; and after an experience extending over some years, there is a general consensus of managers of schools, inspectors, and parents, that the value of primary education has been greatly enhanced by the change."

A BASIS NEEDED FOR TECHNICAL EDUCATION.

3. "Lastly, there is a consideration of a practical character, which seems to us deserving of no little weight. A strong desire exisis throughout this country, and it is growing stronger every day, for the introduction of a general system of Technical Education. It is thought that a good system of Technical Education would contribute largely towards the development of arts and industries in Ireland; and in this opinion we entirely concur. But the present system of primary education is so one-sided in its character that it leaves the pupils quite unprepared for Technical Education. The clever boys trained in the National Schools, if they are disposed to seek for a higher education, may pass with advantage into Intermediate Schools of the kind now general in Ireland; but they are not fit to enter a Technical School, even if they had such a school at their doors. Now it seems to us the changes we recommend would go far to remedy this defect. The system of National Education, modified as we propose, would give an all-round training to the faculties of the children, and would thus lay a solid foundation for any system of higher education —literary, scientific or technical—which might afterwards be found suitable to their talents and their circumstances."

. . . .

THE CHANGE TO BE GRADUAL.

"We think that the changes recommended ought to be introduced, not all at once, but gradually and tentatively. They should be tried first in the large centres, and afterwards extended to more remote districts. It would be necessary, at the outset, to engage the services of experts, from outside the present staff of the National Educational Board, whose duty it would be to organize the classes, and to aid the teachers with their counsel and instruction. But we have no doubt that this work, after a little time, could be taken up by the ordinary staff of the Board. Again, it is obviously important that all teachers should be trained in the new subjects; and the programme of the training colleges must be framed to this end, with as little delay as possible."

. . . . . .

CONCLUSION.

"In presenting this report to your Excellency, we venture to express our conviction that, if our recommendations be adopted, the system of education carried out in the primary schools of Ireland can be made, within a few years, very thorough and complete. At present, no doubt, it is excellent in some respects; but in other respects it seems to us seriously deficient. Insisting too much, as it does, on the study of books, it leaves the faculty of observation and other important faculties comparatively uncultivated; and it neglects almost entirely that training of the hand and eye which would be so useful to the children in their after life, and which is now regarded both in England and on the Continent of Europe as an element of great importance in primary education.

"The development of Manual and Practical Instruction, on the lines we have pointed out, will remedy these defects, and will not, we are satisfied, inflict any injury on the literary education which is now given. It will quicken the intelligence of the children, brighten the tone of school life, and make school-work generally more interesting and attractive. With the system of National Education modified as we propose, the children will be taught not by means of books only, but also by the more simple and effective agency of things; and they will be better prepared for their work in life, which, for the great bulk of them, must consist mainly of manual occupations.

"It is hardly necessary to say that the changes we have recommended cannot be carried out without a considerable expenditure of money. But we feel confident that the State, which so largely maintains and controls the system of National Education in Ireland, will not hesitate to provide the necessary funds for improving that system within reasonable limits. The progress of the people in wealth and material prosperity must largely depend on the education given in the primary schools; and to make that education thoroughly efficient and fit for its purpose is a task, we submit, which may well be undertaken, in the highest interests of the State, whatever the necessary cost may be."

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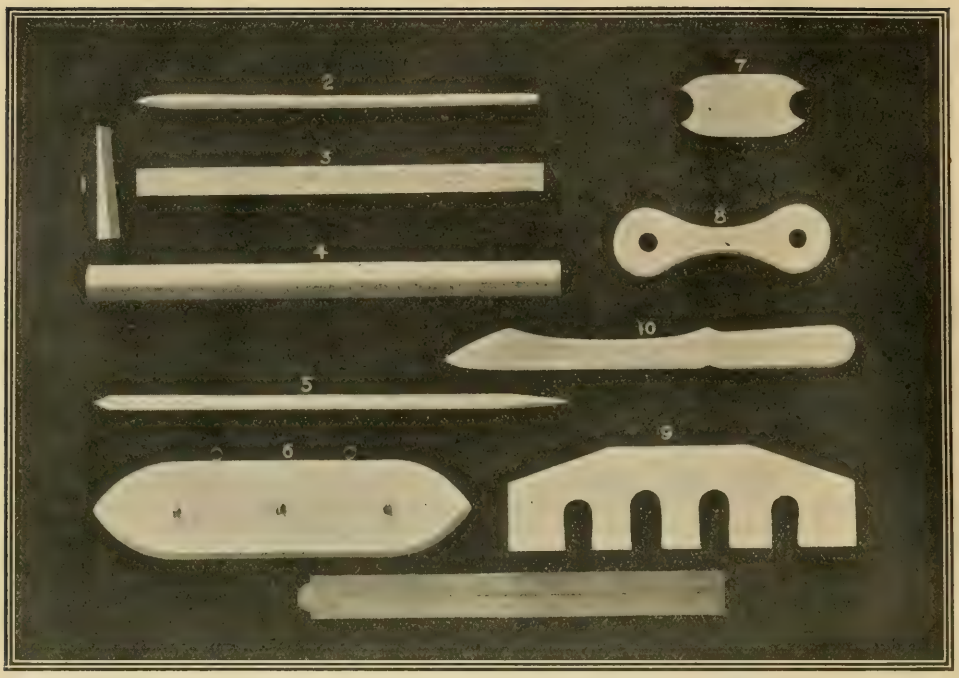
I have quoted freely from that Report. I am greatly indebted to it. I consider it peerless even among Parliamentary Blue Books for the thoroughness of its information. Its statements are clear as sunshine, strong with words of wisdom, and convincing as truth itself.



MODELS OF THE FIRST YEAR'S COURSE

1. Window Wedge—Basswood.
2. Round Flower Stick—Pine.
3. Square Ruler—Pine.
4. Round Ruler—Pine or Mahogany.
5. Square Flower Stick—Pine.
6. Key Rack—Basswood.
7. Fish Line Winder—Birch.
8. Rope Stretcher—Birch or Maple.
9. Marble Board—Basswood.
10. Paper Knife—Birch.

THE PLAN FOR CANADA.

The plan which the generosity of Sir William C. Macdonald of Montreal made it possible for me to adopt for introducing Manual Training into the public schools of Canada, was based very largely on the information and recommendations of that Report. The purpose was to furnish an object lesson of Manual Training in the public schools of at least one town or city in every province in Canada for a period of three years. Sir William provided a fund fully adequate for that scheme, including the equipments of benches and tools, the necessary improvement of the rooms, the salaries of the instructors and the expenses of maintenance for three years. The fund is also sufficient to permit the teachers in training at one Normal School in every province to receive instruction by thoroughly qualified instructors.

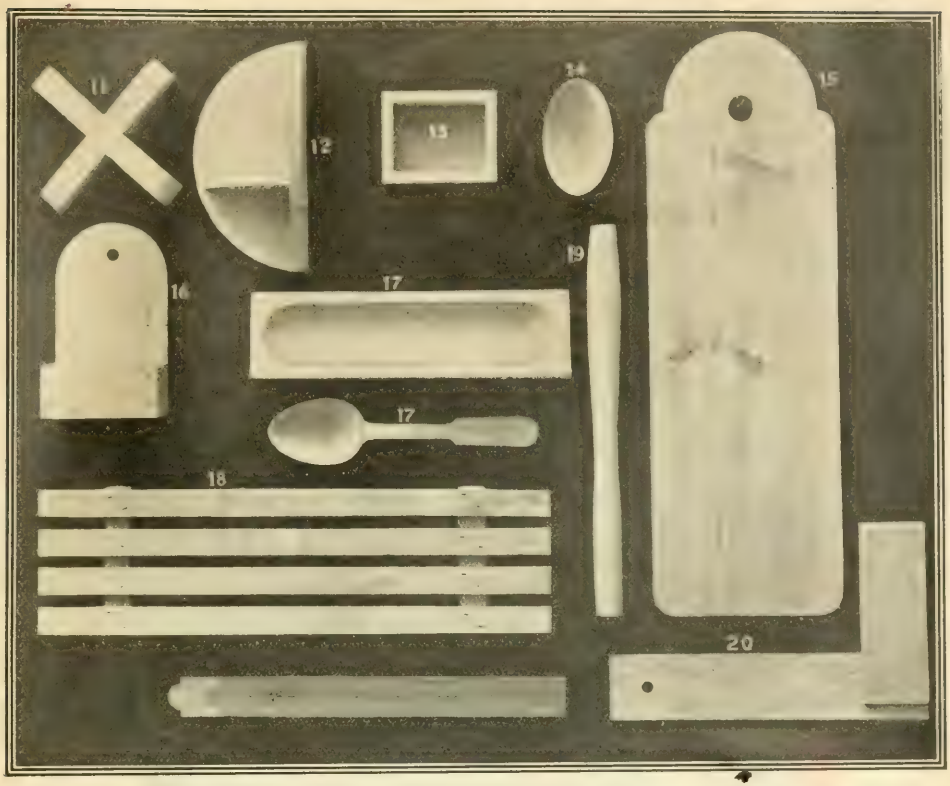
THE PLACES IN CANADA.

In choosing the places to receive the offer of these Manual Training schools consideration has been given to the advantages of selecting centres from which the movement could spread most readily throughout each Province, and most quickly and effectively benefit its school system and its children.

Altogether, provision has been made for about 6,000 boys in the public schools and the teachers attending the Normal Schools to receive Manual Training during three years.

Under the Macdonald Manual Training Fund, I was able to arrange for the opening of a Manual Training school at Fredericton, N.B., in April of 1900.

The school authorities provided a room. All the other expenses were borne by the Macdonald Manual Training Fund. A Saturday forenoon class



MODELS OF THE SECOND YEAR'S COURSE

11. Flower Pot Cross—Pine.
12. Bracket—Basswood.
13. Small Box--Pine.
14. Pin Bowl—Birch.
15. Knife or Bread Board—Pine.
16. Soap Box—Pine.
17. Pen Tray, or Spoon—Birch.
18. Flower Pot Stand—Pine.
19. Hammer Shaft—Birch or Maple.
20. Try Square--Beech.

for teachers was also provided. It was taken advantage of and highly appreciated by them.

A Manual Training school was also opened in April, 1900, in Brockville, Ont. The School Board arranged for a commodious room, and, as in Fredericton, the expenses were met from the Macdonald Manual Training Fund.

A summer course for teachers was provided during the summer holidays at Brockville, Ont., and Fredericton, N.B.

On Saturday forenoons, or at some other convenient time every week, classes are arranged for the teachers from whose schools the boys go to the Manual Training centres. In Ottawa these classes are attended by over 90, and in Montreal by over 100 teachers.

Agreements have been made with the school authorities at the following places; and in them Manual Training has been made part of the public school course :—

In Ontario,—Ottawa, Brockville and Toronto ;*

In Quebec,—Westmount, The Model School, Montreal ; Waterloo, Knowlton, and Bedford ;

In New Brunswick,—Fredericton ;

In Nova Scotia,—Truro ;

In Prince Edward Island,—Charlottetown and Summerside ;

In Manitoba,—Winnipeg ;

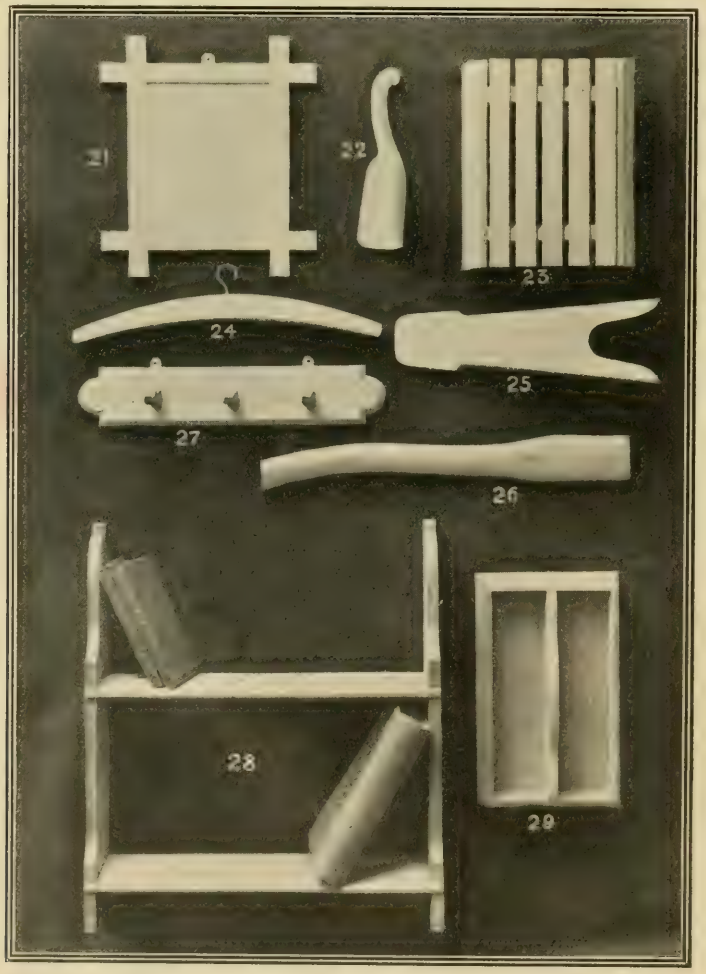
In N. W. Territories,—Regina and Calgary ;

In British Columbia,—Victoria and Vancouver.

*In Toronto, 4 centres only.

TEACHERS FROM ABROAD.

To introduce this improvement into the school system of the various Provinces of Canada, with a chance for the best possible results, it has been necessary to engage teachers who have been trained specially and who have had experience elsewhere. At this date twenty-four teachers have been brought from Great Britain. Two instructors have been engaged from the United States, and one from Sweden. A few more will complete the number of teachers of experience required to begin the work in the various Macdonald Manual Training Schools. Several assistant teachers have been engaged in Canada, who will have an opportunity to become proficient as full instructors. Special courses are also provided at Ottawa, Ont., and Truro, N.S., to train Canadian teachers to carry on the system efficiently and thoroughly in all the Provinces, in



MODELS OF THE THIRD YEAR'S COURSE

21. Oxford Frame—Basswood.
22. Flour Scoop—Birch.
23. Stool—Pine.
24. Coat Suspender—Birch.
25. Boot Jack—Birch or Maple.
26. Axe Handle—Oak or Ash.
27. Clothes Rack—Pine.
28. Book Shelves—Pine.
29. Knife Box—Pine.
30. (Not shown).—Book Stand—Pine.

the several towns and cities where it will be taken up.

The instructors appointed as Directors of Macdonald Manual Training Schools in the different Provinces, have proven themselves to be the right men in the right places; and their assistants also, by their character, their enthusiasm, their qualifications and their skill, have won more than a continuation of the first warm welcome which was extended to them alike by the pupils, the school teachers, the inspectors and the parents. My gratitude and appreciation go out to all concerned in this most delightful object lesson of intellectual and social hospitality, mutually offered and accepted.

POWER TO OVERCOME OBSTACLES.

Manual Training develops in children habits of industry, and leads them thoughtfully to adjust their acts to desired ends. It begets a sense of responsibility, in response to which the child rises to the exercise of its powers in sustained efforts suited to its strength and intelligence. It brings about the mental habit of appreciating good work for its own sake, and is quite different from that sort of education which consists in informing the pupils about the facts within a definite area of knowledge in order that they may be able to pass examinations on the subjects included within it. The so-called dull boys, who are not quick at book-studies, have in many cases been found to show great aptness in the Manual Training part of education. It prevents them from being discouraged with school life, and from feeling any sense of inferiority to the quick children. It gives them habits of carefulness and makes them self-reliant, hopeful and courageous. All of these are manifestly most desirable educational results. It is also a soothing and strengthening corrective to the quick and excitable children who become over-anxious about examinations on book-subjects.

The glow of satisfaction, from having done something well with one's own hands, has certain stimulating and strengthening effects. Is it not the same as that which is revealed by the sacred historian when he wrote: "And God saw everything that He had made, and, behold, it was very good?" It is a good thing to let boys and girls become partakers of this divine joy in their own work. The happiness which springs from the consciousness of having begun and finished a piece of good, useful work by one's own labour, is more than a mental and physical tonic. In large measure it allies the worker with the Power that maketh for righteousness. It gives power to overcome obstacles; and the power to overcome obstacles in the path of material, mental, moral and spiritual progress is perhaps the most desirable quality which can be acquired through education, "*Train up* a child in the way he should go: and when he is old, he will not depart from it."

SUPPLEMENTARY NOTES.

The Equipment.

A room for a single centre to accommodate twenty boys at one time should be not smaller that 600 square feet of floor area; and 750 square feet is a better size. It should be specially well lighted. A cloak room and other conveniences should be adjacent. Single, adjustable wooden benches, with two vises each, have been provided in the Macdonald Schools. Tools for each bench, together with general tools for every twenty bench room, have been furnished as stated on the following lists. The rooms have also been fitted with cupboards, tool racks, and other conveniences necessary in such places.

Tools for Each Bench.

1 Rule.
1 Drawing Rule.
1 Sloyd Knife.
1 Gauge.
1 Try Square.
1 Jack Plane.
1 Firmer Chisel, each ¼, ½, 1.
1 Bench Hook.
1 Pencil Compass.
1 Back Saw.
1 Marking Awl.
1 Drawing Kit.
1 Brush and Hook.

Tools for the Room.

5 Smooth Planes.
3 Fore Planes.
8 Mallets.

1 Draw Knife.
1 Mitre Box.
2 Try Squares.
4 File Cards.
8 Screw Drivers, small.
2 Screw Drivers, large.
1 "T" square, each 4′ and 5′.
8 Flat Files, 8″.
8 Half Round Files, 8″.
2 S. T. Files, 4″ and one handle.
2 Flat Files and one handle.
4 Braces.
5 Bevels.
5 Nail Sets.
8 Wooden Spoke Shaves.
4 Hand Screws.
10 Bradawls, assorted, handled.
2 dozen Bradawls, not handled.
2 Slips for Gouges.
8 Scrapers.
4 Mortise Gauges.
4 Wing Dividers, 5″.
4 Pincers.
1 Cutting Pliers, 5″.
1 Flat Pliers, 5″.
1 Round-nosed Pliers.
2 Oil Cans.
2 Centre Bits, each ¼, ⅜, ½, ⅝, ¾, ⅞, 1, 1¼.
1 Auger Bit, each $\frac{3}{16}$, ¼, ⅜, ½, ⅝ and ¾.
4 Drill Bits.
2 Screw Driver Bits.
2 Wood Countersinks.
1 Iron Countersink.
5 Oil Stones.
1 Rabbet Plane.
10 Hammers.
2 Firmer Gouges, each ½, ¾, bev. inside.
2 Firmer Gouges, each ½, 1, 1¼, bev. outside.
2 Chisels, $\frac{1}{16}$.
4 Firmer Chisels, ⅛.
2 Mortise Chisels, each ¼ and ⅜.
1 Hatchet.
1 Pad Saw.
1 Grind Stone.
4 Rip Saws and 4 Crosscut Saws.
6 S. P. Corks.
2 Spg. Dividers.
3 Cutting Gauges.
5 Gimlets.
1 Tool Grinder.
2 Bent Gouges, No. 15, each ¾ and 1.
2 Blackboard Compasses.

Form of Agreement:

The following is the form of agreement which has been used, with slight modifications to meet local conditions:

THIS AGREEMENT made the.....day of .....nineteen hundred.....
Between
The Board of.....
of the First Part
and
James W. Robertson, of the City of Ottawa, representing the Macdonald Manual Training Fund, [of the Second Part.

WHEREAS the said party of the second part, acting on behalf of the Macdonald Manual Training Fund, has requested the said Board to establish a centre or centres of education with the object of giving to the pupils of .....an opportunity to receive a course of manual training under competent teachers.

AND WHEREAS the said Board has consented to establish a centre or centres for said purpose,

NOW THEREFORE this Agreement witnesseth that in consideration of the premises and of the mutual covenants hereinafter set forth, the said parties hereto agree as follows:

1. The said Board hereby agrees to provide a suitable room or rooms to be used as a manual training school for the term of three years, to be computed from.....

2. The said party of the second part shall at his own expense equip the said room or rooms with all necessary material and apparatus as to him shall seem right for the purpose of such manual training, and at the expiration or other determination of this agreement, such material and apparatus shall belong to and be at the disposal of the said party of the second part, or his successor as representing the said Macdonald Manual Training Fund.

3. The said party of the second part shall at his own expense pay all costs, charges and expenses in connection with teachers' salaries and expenses of equipment, maintenance of equipment, and materials for use of pupils.

4. In case there be not a room or rooms in the premises of the said Board suitable for manual training, when the said Board provides a room or rooms not in their premises, the said party of the second part shall pay the expenses of the janitor or other caretaker and of lighting and heating the said room or rooms; but when a room or rooms in the premises of the said Board are provided for manual training then the said Board shall pay the expenses of the janitor or other caretaker and of lighting and heating of the said room or rooms.

5. The pupils in each manual training centre are to be under the control of the School Board as to attendance, discipline, and all other matters, as in the ordinary school rooms.

6. The course of instruction shall be acceptable to the School Board.

7. In case of any unforeseen difficulty or difference arising between the directors or instructors in manual training and the School Authorities, it shall be referred to a Committee composed of the representative of the Macdonald Manual Training Fund and two members appointed by the Board.

IN WITNESS WHEREOF the said Board of .....have hereunto set their Corporate Seal under the hand of their Chairman and Secretary, and the said party of the second part has hereunto set his hand and seal.

ONE OF THE MACDONALD MANUAL TRAINING CENTRES—OTTAWA

Cupboards with pigeon-holes for every boy's drawings, models and apron are shewn at the far end

MANUAL TRAINING IN OTTAWA.

By Albert H. Leake, Director of the Macdonald Manual Training Schools in Ontario.

MANUAL Training Schools were formally opened in Ottawa, Oct. 27th, 1900, by their Excellencies the Governor-General and the Countess of Minto.

Manual Training centres are now fitted up in the city as follows :—

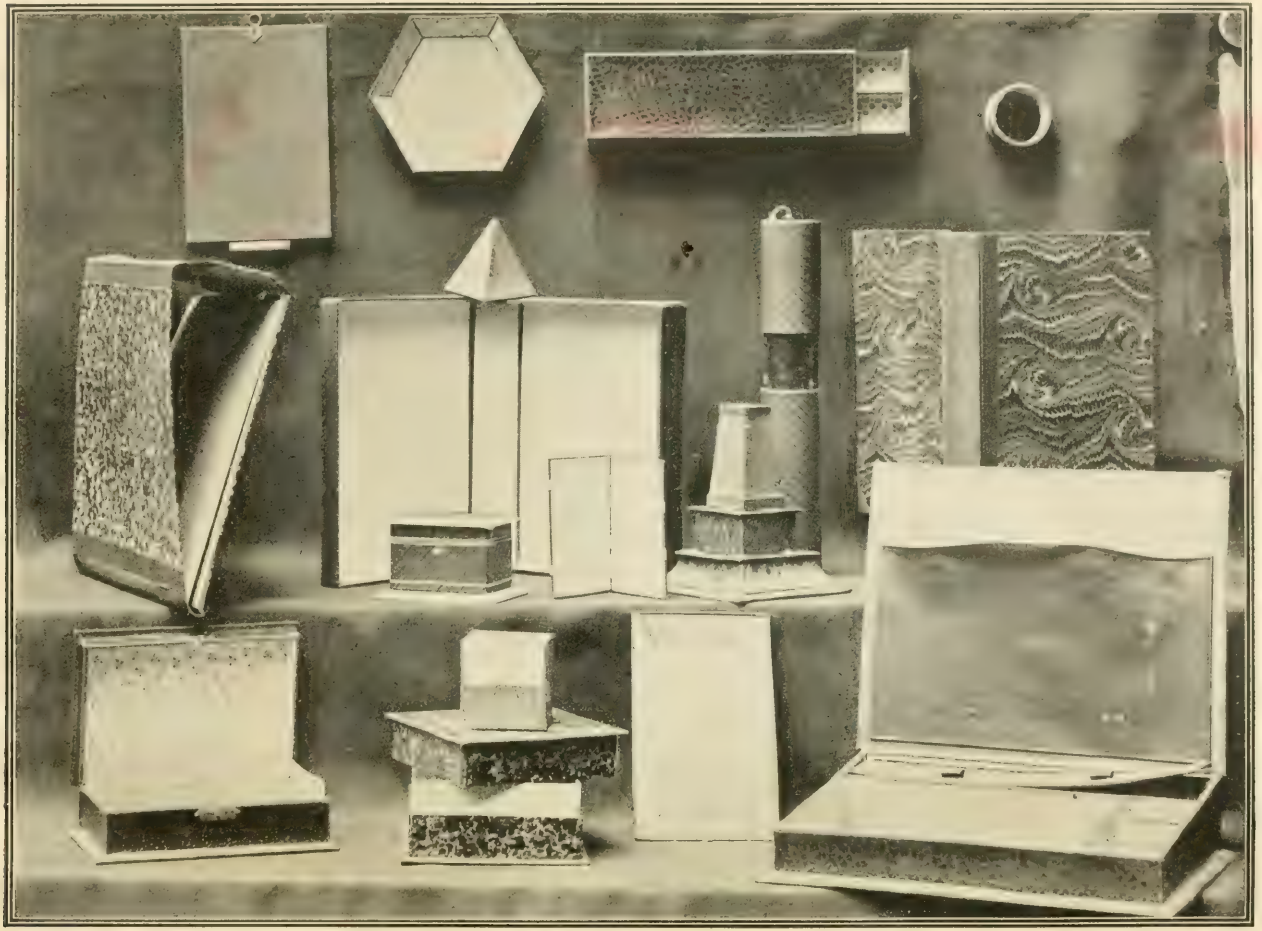
Three public schools — Archibald Street, Cambridge Street and George Street—have each a room for twenty boys. The Model School is provided with the same accommodation, and an outside centre is fitted for sixty boys in the Ottawa Amateur Athletic Association rooms, as being easy of access for those parts of the city not otherwise provided for.

The boys are drafted from the public schools in classes and attend either one forenoon or one afternoon per week. The class attending the centre on Monday forenoon will attend the following week on the same day and at the same time, and so on through the ten half-day sessions of the week for every class attending. The boys in some cases proceed to the Manual Training room directly from their homes, or, what seems the better plan, march from the school under the charge of a teacher or the captain who is elected by the boys themselves. The captain leads the boys into the room, arranges them in bench order and marches them to their assigned bench in the room, which bench is kept throughout a boy's attendance at the class. This method of procedure induces a spirit which is beneficial to the boys and helpful to the work.

The morning session lasts from 9.30 to 11.30, and the afternoon session from 1.30 to 3.30. Accommodation is provided in the city for 1,400 boys to receive one lesson per week. Facilities are provided for every boy from Junior III. upwards to receive this training, and it is hoped that before many months have elapsed a preliminary course will be arranged for the younger boys. Already cases have arisen where a class when given the option of taking a half holiday or attending the Manual Training class, has almost unanimously chosen the Manual Training. The attendance has been gratifying, and the Principals of the schools have expressed the opinion that the attendance at the ordinary school work has been materially improved owing to the attractions offered by this training.

A record of the attendance and work of each boy is kept, so that any time the progress of any individual may be seen. Each boy is provided with an adjustable bench and a complete set of bench tools, placed in a rack at its back, while round the room are arranged the tools not so frequently required. In addition a separate pigeon hole or locker is given to each pupil in which to keep, from week to week, his apron, his drawings and his work, and for the neatness and tidiness, of which he alone is responsible. At the close of every lesson each boy sweeps down his bench and replaces in its proper position every tool he has used. The rooms are also provided with museum cupboards, in which are exhibited the boys' best efforts, the standard models, and any interesting objects relating to the trees and timber of the Province, that may be brought by the boys.

At present the bench work is almost entirely in wood, and consists of a series of models most carefully graduated, in order of difficulty, as to kind of wood, principles of construction and complexity of tool operations. Every model is made from a fully dimensioned drawing previously prepared by the



CARDBOARD MODELS

Memo Slate, Hexagonal Tray, Pencil Box, Serivette Ring, Musical Folio, Square Pyramid, Album Case, Money Box, Card Case, Match Box, Round Pencil Case, Case for Pamphlets, Jewel Casket, Handkerchief Box Cube, Oblong Tray, Writing Desk.

boy himself, first to full size, and later on to a scale. Accuracy of form and measurement is insisted on from the commencement, and it is surprising to find how soon a lad becomes dissatisfied with anything but the best he can produce. No work is accepted that a boy does not conscientiously believe at the time to be his best; and when a lad has made, say model 3, he often asks to be allowed to make model 2 over again, having discovered during the making of number 3, faults in number 2 of which he was not before aware.

The first lesson necessarily consists of an explanation of the rule and its divisions, whether metric or English, practice in drawing lines of given length, first without the rule and afterwards with, and the drawing also of simple elementary figures to given dimensions. After this the boys are taught by an examination of the model itself and the instructions of the teacher to prepare a simple working drawing. Line by line the model is drawn upon the blackboard, the boys pointing out as the work proceeds the actual line of the model represented by the line on the board, so that when the drawing is finished the boys have a clear mental picture of the object they are required first to draw and then to make. No mere copying of drawings is allowed, and to prevent this and also to test the efficiency of the instruction, the drawing is erased and the dimensions of the various parts given, and from these and an examination of the model itself the boys are expected to produce a drawing, fully dimensioned, from which the model can be made. At other times they are allowed to measure the model for themselves and make their drawings from their own measurements.

In addition to the models comprising the different courses, suitable object lessons are given on the growth, defects and character of the different timbers used and the construction of the tools employed, and in these lessons care is taken that the boy has an actual specimen of the wood, or the actual tool in his hand, so that upon it he may exercise his own observation and judgment.

The courses are arranged as follows :

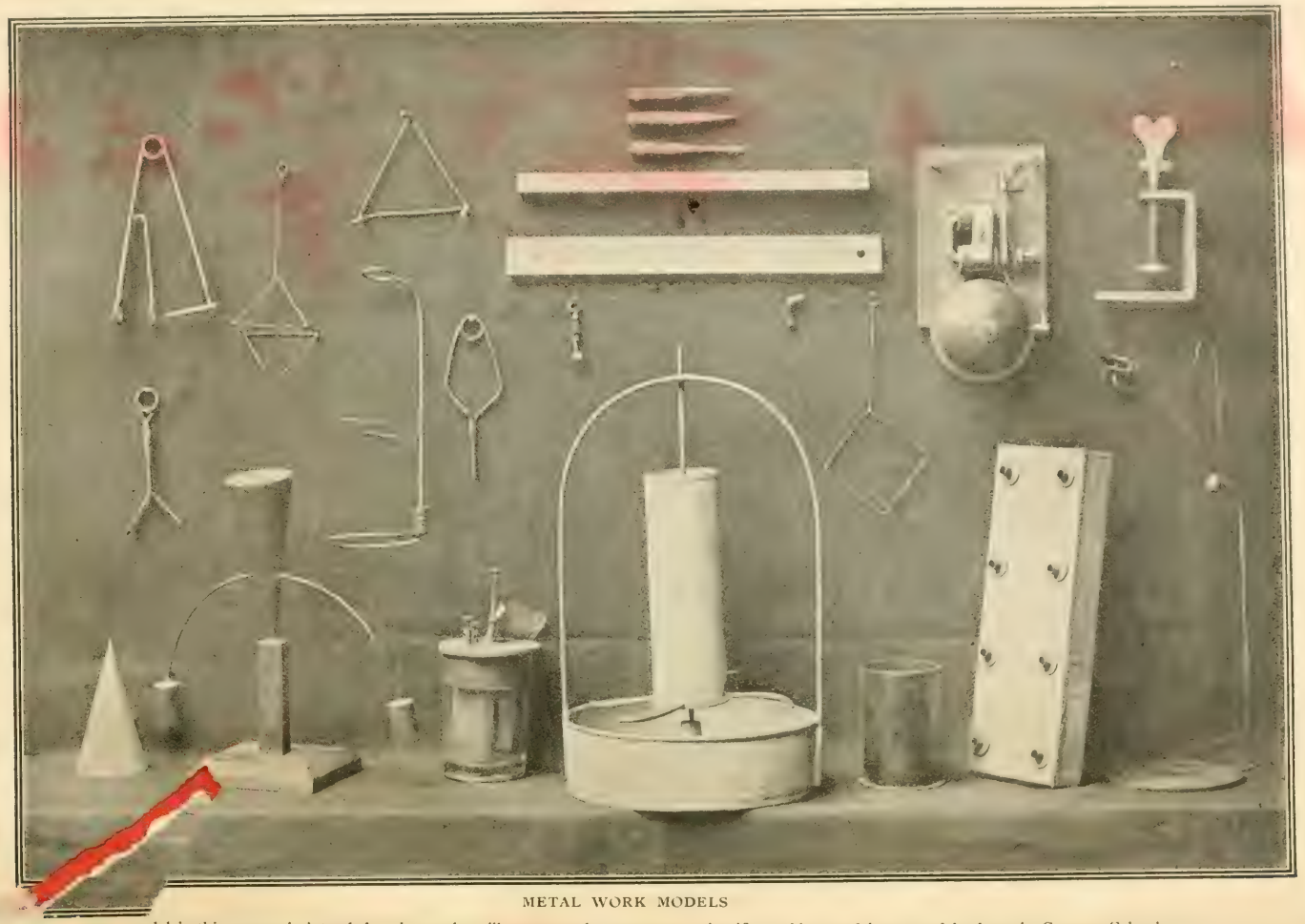
First Year:

	MODEL.	TIMBER.	DRAWING.
1.	Wedge.	Bass or Birch.	Simple elevations.
2.	Round Flower Stick.	White Pine.	Working drawings of different stages.
3.	Square Ruler.	White Pine.	Isometric projection.
4.	Round Ruler.	Pine or Mahogany.	Different stages.
5.	Square Flower Stick.	Pine.	Plans and elevations.
6.	Key Rack.	Basswood.	Plans and elevations.
7.	Fishline Winder.	Birch.	Plans and elevations.
8.	Marble Board.	Pine.	Elevation, plan and end elevation.
9.	Rope Stretcher.	Birch.	Plan and elevation.
10.	Paper Knife.	Birch or Mahogany.	Geometrical construction.

The Second Year's Models are,—Flower Pot Cross, Wall Bracket, Small Box, Pin Bowl, Knife or Sleeve Board, Soap Box, Pen Tray or Spoon, Flower Pot Stand, Hammer Handle and Try Square.

The Third Year's Models are,—Oxford Frame, Flour Scoop, Stool, Coat Suspender, Boot Jack, Book Stand, Clothes Rack, Axe-handle, Book Shelves, and Knife Box.

Although it is too soon to speak of the permanent effects of the training, yet the absorbing interest displayed by the boys, who are taking to the



METAL WORK MODELS

Each model in this course is intended to be used to illustrate and prove some scientific problem and is so used by boys in German Schools.

work in a marvellously intelligent manner, and the unanimous approval of the Public School Principals, point to the fact that this course of training (new to Canada alone) is appealing to that side of a boy's development which has been too long neglected. The hope may be expressed that in the near future every boy in the Province will have an opportunity afforded him of reaping the benefits which then practical education can give.

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